

A REVIEW OF THE MUSCOID GENUS EUMACRO-
NYCHIA WITH KEY AND DESCRIPTIONS
OF NEW SPECIES (DIPTERA)¹

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The genus *Eumacronychia* was established in 1892 by Townsend (Trans. Am. Ent. Soc., 19: 98) and included two species described as new, *viz.*, *decens* and *elita*, of which the first mentioned was designated as the genotype. Coquillett in his well known "Revision of North American Tachinidæ" considered the genus a synonym of *Hilarella*, with which Aldrich concurred (Catalogue, p. 476). In 1926 Allen (Proc. U. S. N. M., 68: 84-94) concluded that the genus was valid and published descriptions of five new species with a key to distinguish the known forms.

Little is known concerning the biology or host relationships of the species belonging to *Eumacronychia*. In distribution the genus is restricted largely to the Southwest. The flies appear more commonly active during July and August and most of my specimens were collected while feeding at nectaries on pods of cowpeas. A few were swept from the ground on barren sandy areas where they alighted exposed to the hot sun.

The species are strikingly similar in general appearance, but the male genitalia in most cases show good specific characters for distinguishing the various forms. The females are more difficult to identify specifically on structural characters and have been placed mainly by association with the opposite sex in the field. A recent study of my material, based principally upon male genitalia, has disclosed a number of undescribed species. It appears desirable to publish these with a key to the present known forms. Types of all new species are in my collection.

Members of this genus are small to medium-sized species (4 to 9.5 mm.) in which the abdomen is characteristically marked by alternating white and black cross bands. As a group the present

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known species show, among others, the following characters: Front at least moderately wide and orbital bristles (two proclinate, one reclinate) present in both sexes; ocellars well developed, proclinate; frontal bristles in a single row, stopping at or but slightly beneath base of antennæ; verticals two pairs; frontal stripe reddish yellow, wider than one parafrenal on upper half and usually pollinose; antennæ reaching far below middle of face; arista bare, middle segment short; facial depression wide and moderately deep, ridges bare except a few bristly hairs next to vibrissæ; sides of face not narrowed downward, bare to distinctly hairy; vibrissæ well developed, decussate, situated slightly above front edge of oral margin; cheek clothed with only fine hairs on lower border; proboscis much shorter than height of head, labella fleshy; palpi well developed, usually yellow; eyes bare; back of head densely pollinose, beset with only black hairs. Thorax with well differentiated dorsocentral bristles, two in front and three behind suture; acrostichals hair-like or absent; sternopleurals two; pteropleural small; propleura and prosternum bare; calypters opaque, white; postscutellum not developed; scutellum black with well developed marginal bristles. Abdomen never with discals; genitalia in male large and prominent, in female the first genital segment rather broadly exposed, effecting the appearance of a fifth abdominal within which the second genital segment is retracted and shows a slitlike genital opening. Legs black, bearing moderate-sized bristles; hind tibiæ not ciliate; claws and pulvilli usually longer in male but sometimes short in both sexes; middle tibiæ with one bristle on outer front side near middle; fore tarsal segments ordinary in structure and not ornamented. Wings normal in shape; veins bare except third which is setulose halfway to small cross vein; first posterior cell open far before extreme wing tip; hind cross vein oblique to fourth, which it joins about one-third the distance from bend to small cross vein; last section of fifth vein never exceeding one-half the length of preceding section; costal spine small or vestigial.

To avoid a profitless repetition of all characters common to the members of the genus, only the more essential items or distinguishing differences are mentioned under the descriptions. The following key will assist in separating the thirteen known species.

KEY TO SPECIES OF EUMACRONYCHIA

1. Fourth abdominal segment entirely black 2
 Fourth abdominal segment red, at least on apex 6
2. Parafacials with distinct black hairs extending on upper half 3
 Parafacials without black hairs or at most with a few minute ones
 on lower extremity 5
3. Scutellum with two pairs of large marginal bristles 4
 Scutellum with three pairs of marginals; palpi distinctly enlarged;
 abdomen not elongate; claws and pulvilli short; male only (Calif-
 ornia) *crassipalpis* n. sp.
4. Abdominal segments 2 and 3 with defined pollinose cross bands on basal
 two-thirds (Colorado, Washington) *rohweri* Allen
 Abdominal segments 2 and 3 with dense pollen extending to hind
 margin of each (Manitoba) *elongata* Allen
5. First abdominal segment without median marginals; antennæ reddish
 yellow; claws and pulvilli short in both sexes (Texas).....*alternata* n. sp.
 First abdominal segment bearing median marginals; third antennal
 segment infuscated; claws and pulvilli elongate in male (New Mexico,
 California) *elita* Townsend
6. Parafacials clothed with black hairs on upper half 7
 Parafacials bare or with only pale hairs on upper half 8
7. Parafrontals beset with long erect bristly hairs; inner forceps of male
 genitalia curved abruptly forward at tip; frontal stripe in female with
 sides parallel from antennæ to vertex (Ohio).....*nigricornis* Allen
 Parafrontals practically bare; inner forceps of male tapering evenly to
 tip as viewed from side; frontal stripe in female gradually widening
 toward vertex (Texas) *tricosa* n. sp.
8. Front not narrowed toward antennæ 9
 Front distinctly narrowed at antennal base 10
9. Small species rarely exceeding 5 mm.; male with minute claws and
 pulvilli; outer genital forceps in profile much wider than inner ones
 and with the anterior apical extremity broadly rounded (Texas).
agnella n. sp.
 Larger species (average 7 mm.); male with elongate claws and pulvilli;
 outer genital forceps hardly exceeding width of inner pair and with
 the anterior apical extremity prolonged and angulate (Texas, New
 Mexico, California, Central America).....*sternalis* Allen
10. Arista thickened on basal three-fifths 11
 Arista thickened on basal two-fifths; in male, lobes of fifth sternite
 prominent with an acute incurved marginal projection near middle;
 inner forceps not bowed as viewed from behind, outer pair slender or
 fingerlike; in female, first genital segment rounded above; cheek two-
 fifths eye height (Texas).....*prolixa* n. sp.
11. Males 12
 Females 14

12. Cheek at most one-third eye height; inner forceps divided but only slightly divergent beyond middle13
 Cheek nearly one-half eye height; inner forceps bowed and widely separated at middle as viewed from behind; penis geniculate, the apical segment flattened or straplike; lobes of fifth sternite prominent with the inner margin evenly rounded (New Mexico, California).
decens Townsend
13. Outer forceps in profile broadly bowed and tapering sharply to middle, thence gradually narrowed to a pointed tip (New Mexico, Arizona, Utah)*montana* Allen
 Outer forceps not bowed, but rather distinctly twisted on long axis, terminating in a flattened spatulate tip (Texas, New Mexico, Arizona).
tortilis n. sp.
14. First genital segment evenly rounded above15
 First genital segment laterally compressed and ridged along median line above*tortilis* n. sp.
15. Larger species 6 to 8 mm. in length; cinereous or pale gray in general aspect; apical scutellars and median marginals on second abdominal segment usually present*decens* Townsend
 Smaller (one specimen, 5 mm. in length); plumbeous or dark gray in general appearance; apical scutellars and median marginals on second abdominal segment absent*montana* Allen

***Eumacronychia crassipalpis* new species**

MALE.—Front on anterior extremity equal eye width and hardly any wider at vertex; parafrontals moderately clothed with short black hairs, which extend downward over entire surface of parafacials; facial depression only a little longer than its maximum width; antennæ reaching to lowest fifth of face, third segment black and rather noticeably inflated or thickened, about two and one-half times longer than second; arista black, thickened on proximal two-fifths; cheek one-third eye height; palpi brownish, unusually thickened on apical two-thirds; vibrissal axis of head a trifle shorter than antennal. Scutellum bearing three pairs of marginal bristles, the apical pair slightly divergent and fully one-half as long as the preceding pair. Abdomen rather short and compact, black, pollen bands on segments two and three extending on venter; first segment bearing one pair of median marginal bristles which are almost as strong as the pair on segment two; third and fourth segments each with a marginal row; genitalia shining black, in repose moderately extruding from tip of abdomen; first genital segment bearing a marginal row of horizontal bristly hairs; fifth sternite not prominently exposed, lobes beset with longish backwardly directed hairs. Legs black, moderately stout, not villous; claws and pulvilli much shorter than apical tarsal segment. Wings gray hyaline; costal spine small but distinct.

Length: 6 mm. Female, not known.

Holotype: California (without precise locality), September, 1931, no collector's label.

The compact build, thickened palpi and antennæ at once distinguish the species from other members of the genus.

Eumacronychia alternata new species

MALE.—Front at base of antennæ narrower than width of eye; parafrontals, parafacials and cheeks with dense silvery gray pollen, the former practically bare but a few scattered short black hairs present on upper part; antennæ wholly reddish yellow, third segment slender and nearly three times length of second; arista brownish, shorter than antennæ, thickened on basal three-fifths; parafacial bare or at most with inconspicuous delicate pale hairs; cheek one-fifth to one-fourth the eye height; palpi yellow, slender but somewhat thickened at tip; proboscis stout, apical segment only a trifle longer than palpi; vibrissal axis of head distinctly shorter than the antennal. Scutellum with two large pairs of marginal bristles, apical pair absent. Abdomen black, slightly elongate and gradually tapering apically; pollen bands on intermediate segments extending narrowly on venter; first segment without median marginal bristles, second with one pair; third and fourth segments bearing the usual marginal row; genitalia black, large and prominently extruded from tip of abdomen; inner forceps terminating in a blunt tip, divided on apical half but not divergent, clothed behind with fine reclinate hairs; first genital segment bare, slightly pruinose; lobes of fifth sternite inconspicuous. Legs black; hind femur with some longish fine hairs along lower edge; claws and pulvilli shorter than apical tarsal segment. Wings sub-hyaline; costal spine vestigial.

FEMALE.—One specimen taken in company with the males described above is provisionally referred here. It differs as follows: Front at base of antennæ distinctly exceeding the eye width; vibrissal axis of head more nearly approaching length of antennal axis; third segment of antennæ thicker and hardly more than twice the length of second; arista thickened barely to middle; pollen bands on abdomen extending broadly on venter; hind femur not villous.

Length: 5 to 7 mm.

Holotype: Male, College Station, Texas, July 9, 1917 (H. J. Reinhard). Paratypes, one male and one female, same data as holotype.

Eumacronychia elita Townsend

Eumacronychia elita Townsend, Trans. Am. Ent. Soc., Vol. 19, p. 100, 1892; Allen, Proc. U. S. N. M., Vol. 68, p. 91, 1926.

A small species very similar to the preceding from which it differs principally in having elongated claws and pulvilli; first abdominal segment with a pair of median marginal bristles; third antennal segment blackish and the first genital segment beset with a row of small but distinct bristles near middle above.

Two males and one female labelled "So. Calif., April 5, 1931," no collector's label.

The female sex has not been positively identified. The specimen here included was presumably taken in company with the males mentioned above. It agrees in most details with the characters listed under *alternata*.

Holotype in the U. S. National Museum. Type Locality: Las Cruces, New Mexico.

Eumacronychia rohweri Allen

Eumacronychia rohweri Allen, Proc. U. S. N. M., Vol. 68, p. 92, 1926.

Allen's description, which is readily accessible, provides most of the essential details. A few additional items with reference to the structure of the genitalia may be added here. Inner forceps elongate, almost straight and very thin in profile, viewed from the rear tapering to a pointed tip, divided beyond middle but not at all separated; outer forceps wider and almost as long as inner ones; claspers rather short and blunt-tipped; penis bowed forward near middle and somewhat swollen or flask-shaped near apex; first genital segment shining black, bearing bristly hairs on apical half above. The female sex is not known.

Six males as follows: two, Bull Prairie, Lake Co., Oregon, July 22 and 23, 1932, 7000 feet (D. K. Frewing); three, Signal Peak, Washington, June 21, 1935, 5111 feet (J. Wilcox); and one, Drakes Peak, Lake Co., Oregon, 8300 feet (D. K. Frewing).

Holotype in the U. S. National Museum. Type Locality: Florissant, Colorado.

Eumacronychia elongata Allen

Eumacronychia elongata Allen, Proc. U. S. N. M., Vol. 68, p. 93, 1926.

I have not seen any specimens of this species. It is so far the only known member of the genus in which the abdominal segments are densely pollinose to the apices. This outstanding character should make it readily recognizable. The female is not known.

Holotype in the Canadian National Collection. Type Locality: Onah, Manitoba, Canada.

Eumacronychia nigricornis Allen

Eumacronychia nigricornis Allen, Proc. U. S. N. M., Vol. 68, p. 90, 1926.

The type series (one male and one female), which I have not seen, represents the only known specimens. As described, the species differs from all related forms in having the parafrontals and parafacials clothed with long, erect, black, bristly hairs.

Holotype (male) and allotype (female) in the Ohio State Museum (J. S. Hine Collection). Type Locality: Sugar Grove, Ohio.

***Eumacronychia tricos*a** new species

MALE.—Front at base of antennæ about three-fourths, and at vertex equal to width of eye; parafrontals grayish yellow, bearing a few scattered short black hairs; antennæ extending to lowest fifth of face, proximal segments reddish yellow, third infuscated, slender and about three times longer than second; arista black, thickened to middle; parafacial white pollinose on yellow ground color, sparsely clothed on entire surface with short but distinct black hairs; palpi yellow, a little thickened apically; vibrissæ stout, decussate, situated slightly above front edge of oral margin; cheek one-fifth to one-fourth eye height; vibrissal axis of head barely two-thirds length of antennal axis. Marginal scutellar bristles two pairs, large, apical ones reduced to small decussate hairs. Abdomen rather slender or pointed apically, black except fourth segment which is broadly reddish yellow; first segment without median marginals, second with one well developed pair; third and fourth segments each with a marginal row of eight to ten stout but not very long bristles; pollen bands interrupted above by a narrow median vitta and in a rear view sharply limited at the sides on intermediate segments; genital segments reddish yellow, first shining and bare; second segment at middle above beset with short black hairs; inner forceps divided but not strongly divergent, in profile slightly bowed and tapering evenly to a pointed tip, which is blackish in color; outer forceps as long as inner ones but considerably broader, tapering rapidly outward to just before the apex, thence expanded into a spatulate tip bent toward apex of inner forceps; fifth sternite prominent, the lobes separated by a broad V-shaped incision and clothed with delicate black hairs. Legs shining black, except hind surface of front femur which is gray pollinose; claws and pulvilli from one-half to almost equal the length of last tarsal segment. Costal spine not developed.

FEMALE.—Front at base of antennæ equal the eye width; arista thickened on basal three-fifths; cheek about one-third height of eye; first genital segment somewhat compressed at sides and ridged above, second segment retracted showing the usual slitlike genital opening which is beset with a marginal row of inwardly directed bristly hairs; claws and pulvilli short.

Length: Male, 5.5 to 6.5 mm.; female, 7 mm.

Holotype: Male, College Station, Texas, April 18, 1935 (H. J. Reinhard). Paratypes, one male same data as holotype and one female, College Station, Texas, May 5, 1934 (H. J. Reinhard).

Eumacronychia agnella new species

A small species with the front uniform in width from anterior extremity to vertex; first genital segment beset with black hairs near middle above.

MALE.—Front at level of antennal base equal to or slightly exceeding width of eye; parafrontals grayish white pollinose and practically bare; antennæ extending to lowest fifth of face, reddish yellow with third segment more or less infuscated and about three times longer than second; arista blackish, thickened on basal two-fifths to middle, slender beyond; parafacials apparently bare, with dense white subshining pollen; cheek sparsely haired on lower part, nearly one-fourth eye height; palpi yellow, slender but slightly thickened before apex; vibrissal axis of head three-fourths the length of antennal. Scutellum with two pairs of long marginal bristles, the apicals reduced to small hairs. Abdomen rather slender, black with at least the apex of fourth segment reddish; pollen bands on intermediate segments indented but not completely interrupted along the dorsal median line; median marginal bristles on second segment variable (four specimens without any, four with only one bristle developed, and one with a distinct symmetrical pair); no median marginals on the basal segment; third and fourth segments each with a marginal row of about six bristles, which sometimes are irregularly developed on the former; genital segments reddish, smaller than usual and in repose not prominently extruding from tip of abdomen; inner forceps rather short, contiguous to shortly before apex thence divergent; outer forceps a little longer than inner ones and in profile about twice as thick, narrowest just before apex which is broadly rounded and produced into an acute tooth at the posterior extremity; penis rather long and flattened, bowed forward near middle terminating in a pale membraneous hood; lobes of fifth sternite moderately exposed, yellow, clothed with fine black hairs. Legs black, rather short and stout; femora not conspicuously villous; claws and pulvilli short. Costal spine minute or vestigial.

FEMALE.—Front gradually widening from vertex downward, at antennæ almost one and one-half times the eye width; antennæ wholly reddish yellow, third segment barely two and one-half times length of second; arista reddish yellow on thickened part, darker beyond; cheek one-third eye height; abdominal segments one and two without median marginal bristles; third bearing a stout pair besides a weaker lateral marginal one; first genital segment broadly and evenly rounded above; genital opening slitlike, with a marginal row of short black bristly hairs.

Length: Male, 3 to 5 mm.; female, 6 mm.

Holotype: Male, College Station, Texas, July 17, 1923 (H. J. Reinhard). Paratypes, eight males and one female, College Station, July 14 to 17, 1923 (H. J. Reinhard).

Eumacronychia sternalis Allen

Eumacronychia sternalis Allen, Proc. U. S. N. M., Vol. 68, p. 89, 1926.

The elongated claws and pulvilli in the male sex at once distinguish the species from *agnella*, to which it seems most nearly related. The outer genital forceps, as viewed from the side, are hardly as thick as the inner pair and terminate in a broad oblique tip bearing a small acute tooth on the hind side. As in *agnella*, the first genital segment bears a few black bristly hairs behind the middle above.

Twenty-four specimens (both sexes), College Station, Texas, April to October, 1917-36 (H. J. Reinhard).

Holotype in the U. S. National Museum. Type Locality: Galveston, Texas.

Eumacronychia montana Allen

Eumacronychia montana Allen, Proc. U. S. N. M., Vol. 68, p. 88, 1926.

Very similar to the following species, with which it may be confused without reference to the male genitalia. In the present form the outer forceps, as viewed from the side, are broadly bowed and taper to sub-acute tips.

Two specimens (male and female) labeled "Utah 1924" lack median marginals on the second abdominal segment and a second male from Arizona has but one of the bristles developed. The original description, which is largely in the form of a comparison with *decens*, does not specifically mention the abdominal chaetotaxy of the type series (two males).

Holotype in the U. S. National Museum. Type Locality: Mesilla Park, New Mexico.

***Eumacronychia tortilis* new species**

MALE.—Front at antennæ distinctly less than the eye width and gradually widening toward vertex; parafrontals grayish white, bearing a few short black hairs on upper extremity and bare below; parafacials silvery white, bare or sometimes with minute inconspicuous pale hairs; antennæ reddish yellow, third segment slender and nearly four times as long as second; arista brownish, thickened on basal three-fifths; palpi reddish yellow, slender but a trifle swollen apically; cheek one-fifth to one-fourth the eye height; vibrissæ almost half the length of second antennal segment above front border

of oral margin; vibrissal axis of head about two-thirds as long as the antennal axis. Scutellum bearing two pairs of large marginal bristles, the apical ones greatly reduced in size and sometimes appearing as fine decussate hairs. Abdomen moderately slender, black except fourth segment, which is wholly reddish yellow; pollen bands sharply defined, tapering on sides of segments two and three but continuing on venter, not interrupted at middle above; first segment without, second with a pair of median marginal bristles; third with a marginal row of six to eight, fourth with ten moderately strong bristles; genitalia reddish, large and prominent; first genital segment faintly pruinose, bare on entire upper surface; inner forceps divided as usual beyond middle but hardly at all divergent, tips rather blunt, blackish; outer forceps barely exceeding length of inner ones, in profile broad at base tapering rapidly to middle thence obviously twisted on long axis and terminating in a flattened spatulate tip; fifth sternite with a broad V-shaped incision, the lobes not conspicuously exposed, bearing longish fine black hairs along inner margin. Legs black; hind femur moderately villous along lower edge; fore claws and pulvilli about equal the length of last tarsal segment. Wings subhyaline, third vein setulose about halfway to small cross vein; costa without a distinct spine.

FEMALE.—Front at antennæ distinctly exceeding the width of eye; third antennal segment rather wide and about three times as long as second; cheek one-fourth the eye height; median marginals on second abdominal segment small or frequently absent; first genital segment somewhat compressed and ridged along median line above; claws and pulvilli short.

Length: 6.5 to 8 mm.

Holotype: Male, College Station, Texas, July 5, 1917 (H. J. Reinhard). Paratypes, ten males and thirteen females, College Station, July 1-17, 1917, May 5, 1918 (H. J. Reinhard); one male, Steins, New Mexico, July 4, 1917, no collector's label; and one male, Deming, New Mexico, July 15, 1917 (R. C. Shannon).

Eumacronychia decens Townsend

Eumacronychia decens Townsend, Trans. Am. Ent. Soc., Vol. 19, p. 99, 1892; Allen, Proc. U. S. N. M., Vol. 68, p. 86, 1926.

The descriptions given in the above listed references supply most of the essential details except with respect to the genitalia. The following items may be added: Inner forceps of male widely separated and somewhat bowed as viewed from behind; penis geniculate far before the middle, distal segment longer than inner forceps, decidedly flattened or very thin in profile; viewed from behind the distal segment is black with a narrow pale lateral margin, broad at the base and tapering slowly to a narrow emar-

ginate tip. In the female the first genital segment is usually evenly rounded above but sometimes shows a slight median ridge at the apical extremity. The female specimen from College Station in the collection of the late James S. Hine, identified as *decens* by Allen, was collected by the writer. It is one of the series described herein as *tortilis*. There appear to be no authentic records of *decens* from Texas.

One male and one female, Riverside, California, April 11, 1933, and one male, Ontario, California, April 5, 1933, all taken by A. J. Basinger; two females, Victorville, California, April 25, 1936 (H. A. Bess); one male and one female, labeled California, May 1929 and August 1927, without precise locality or collector's label; and two females, Rillito, Pima Co., Arizona, May 2, 1935 (A. J. Basinger).

Holotype in the University of Kansas Museum. Type Locality: Las Cruces, New Mexico.

***Eumacronychia prolixa* new species**

MALE.—Front at antennal base equal to width of eye and widening slightly toward vertex; parafrontals and parafacials silvery pollinose on yellow ground color, the former with only a few short hairs on upper part; antennæ reddish yellow, third segment somewhat darker, rather slender and about three times length of second; arista brownish, thickened on proximal two-fifths and slender beyond; facial ridges bare, parallel nearly to lower extremity then distinctly converging to the vibrissæ, which are well above oral margin; parafacial widening downward to exceed the width of facial depression, clothed with very minute or microscopic pale hairs; palpi reddish yellow, slender and as usual a trifle thickened apically; cheek clothed with black hairs on lower border, almost two-fifths the eye height; antennal axis of head at least one-fourth longer than the vibrissal. Scutellum with two strong marginal bristles besides a weak decussate apical pair. Abdomen elongate, conical fourth segment reddish yellow, preceding ones black; pollen bands sharply limited on sides of intermediate segments, not interrupted at middle above but showing a very narrow obscure dark stripe in most views; second segment with a pair of stout median marginals, none on the first segment; two distal segments each with a marginal row of about eight good-sized bristles; genitalia large and prominent, reddish yellow except forceps, which are blackish; first genital segment bare on entire upper surface, second rather evenly beset with short black bristly hairs; inner forceps slender, divided from near base to tip but hardly at all divergent; outer forceps fingerlike, shorter than inner ones and in profile hardly as thick, the tips blunt; penis rather short and thick, terminating in a swollen tip bearing a pale transparent membrane on the hind side; fifth sternite with a deep broad U-shaped incision,

the lobes prominent with the inner margin at the median angle acutely produced inwardly, clothed with numerous long slender black hairs. Legs black, moderately stout; femora villous; fore claws and pulvilli exceeding the combined length of last two tarsal segments. Wings sub-hyaline, not reaching the tip of abdomen; costal spine not developed.

FEMALE.—Front at antennæ distinctly exceeding the eye width; third antennal segment shorter and broader than in male; first genital segment not compressed at sides and broadly rounded above; claws and pulvilli short.

Length: Male, 9.5 mm.; female, 5 mm.

Holotype male, and allotype female, on one pin, Galveston, Texas, August 30, 1931 (H. J. Reinhard). Paratype, one male, same data as holotype and allotype.

